REMARKS

Reconsideration of the above-identified patent application in view of the amendments above and the remarks following is respectfully requested.

Claims 1-14 are in this case. Claims 1-14 have been rejected under § 102(e). Independent claims 1 and 11 have been amended. Dependent claims 7-8 and 14 have been amended. New claims 15 and 16 have been added.

The claims before the Examiner are directed toward a system and method to provide feedback to an operator of a device having a delay in the feedback path. The operator is provided with a display device operative to display an image from a camera located on the device and, via a control device such as a joystick, the operator issues commands to the device that can include commands to move the device or to move the camera relative to the device or to zoom the lens of the camera. To prevent problems associated with feedback delay, such as a tendency to oversteer, on the one hand, or to be overly cautious and slow, on the other hand, the present invention displays a predicted image on the operator's display that closely approximates the view that would be expected from the camera if there were no feedback delay.

§ 102(e) Rejections

The Examiner has rejected claims 1-14 under § 102(e) as being anticipated by Iida et al., US Publication No. 2002/0180878 (henceforth, "Iida et al. '878"). The Examiner's rejection is respectfully traversed.

The Examiner has rejected, on the basis of In re Sprock, 55 CCPA 743, 386 F.2d 924, 155 USPQ 687 (1968), the following argument presented July 18, 2007 by Applicant:

> Applicant respectfully contends that it would be clear to one skilled in the art that visual devices such as the markings on scroll bars of the First Embodiment of Iida et al. '878 or the meters of the Second Embodiment of Iida '878 require more interpretation on the part of the operator than a display showing an estimate of the current view from the camera based on a previous view from the camera and modified so as to account for changes in that view that would be caused by movement commands issued up to that time, as taught in the present application.

While continuing to traverse the Examiner's rejection, Applicant has, in order to expedite prosecution of the application, further amended independent claims 1 and 11 so as to include language making it absolutely clear that according to the method and system of the present invention the operator is presented with at least a portion of the first photographic image modified according to an operation selected from the group consisting of translation, rotation, magnification and reduction. Therefore, this crucial distinction between Iida et al. '878 and the present invention described in the above citation from Applicant's arguments of July 18, 2007 is now incorporated in the claims.

Support for these amendments can be found in the specification. Specifically, support for including, in the display, modifications of photographic image data from the camera, without the use of graphic devices such as scroll bars or dials, can be found in the following citation from paragraph 30 of the present application, as published by the USPTO, publication number 20060187224:

[0030] Reference is now made to FIG. 2, which is a view of display 12 showing an image 30 of a predicted view from device 14 due to a movement command. Remotely operated system 10 is configured such that image 30 of the predicted view from device 14 at the second position is displayed on display 12 at substantially the same time that a movement command is issued. Therefore, image 30 is displayed prior to the operator receiving real feedback of the actuated movement command. Image 30 is based upon at least part of image 28 (FIG. 1). It will be appreciated by those skilled in the art that as movement controller 16 is actuated, the image displayed on predictive display 12 is altered to reflect the current predicted view from camera 18 after the movement command is complete. The current predicted view from camera 18 after the movement command is complete, is formed by manipulating image 28, for example by moving or scaling or rotating image 28, as appropriate, such that, the center of an image of a view from camera 18 at the second position corresponds to the center of predictive display 12. Scaling of image 28 is necessary where forward and reverse movement commands are issued. Other manipulation of image 28 is performed to reflect the desired results. Scaling of image 28 is illustrated with reference to FIG. 5. Therefore, as movement controller 16 is actuated, the image displayed by predictive display 12 gradually changes from image 28 to image 30. Therefore, there is a plurality of images which are displayed on predictive display 12, which represent the actuating of movement controller 16 in order to move device 14 from the first position to the second position. In the example of FIG. 2, the movement command given by the operator to move device 14 from the first position to the second position was to turn device 14 in a left direction. Therefore, in this example, the right portion of image 30 is formed by using most of image 28 except for part of the right portion of image 28. The left portion of image 30 has a blank "filler" section 32 indicative of image data which cannot be derived from image 28. It should be noted that as the operator moves the steering control of movement controller 16 to the left, image 30 will change to include gradually less of the right portion of image 28 and more of "filler" section 32. It will be appreciated by those skilled in the art that other operations including lateral, rotational, scaling and other image manipulations may be performed by processor 24 on image 28 to create image 30 depending on the desired movement command. Additionally, image 30 may be created by processor 24 using advanced image processing techniques to produce an image which is based upon image 28 as well as other images of prior views stored by remotely operated system 10. It should be noted that image 30 is created by altering image 28 to reflect the predicted view from camera 18 when device 14 is at the second position and not by superimposing an arrow or vector on image 28 to show where the second position is. Typically, processor 24 instructs actuator 27 to automatically execute the movement commands as steering occurs. Optionally, the movement command is manually confirmed to actuator 27 of device 14 to

> commence actual execution of the movement command. Actuator 27 then completes the desired movement of device 14 to the second position. Although image 30 continually reflects an image of the predicted view at the second position, image 30 is continually updated by views captured by camera 18 even while camera 18 is moving. (emphasis added)

In addition to inserting the above-mentioned language, Applicant has moved the term "device" from the preambles of claims 1 and 11 to the main bodies thereof, in order to accommodate the limitations on the type of device to be applied in new claims 15 and 16 (please see below). Formal and stylistic changes, such as adjusting the lettering of subportions of the claims and substitution of "said" for "the", in accordance with this movement, have also been made to independent claims 1 and 11 and dependent claims 7 and 8.

The Examiner has also rejected, on the basis of In re Sprock, 55 CCPA 743, 386 F.2d 924, 155 USPQ 687 (1968), the following argument presented July 18, 2007 by Applicant:

> In a system where the camera is mounted on a moving vehicle it is highly desirable to present the operator with a view that substantially provides the impression of being in the vehicle and looking along the optical axis of the camera. The moving-frame display taught by Iida et al. '878 does not provide this perspective.
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> ...Applicant respectfully contends that the above-described drawbacks of the operator display described by Iida et al. '878 render this system significantly less satisfactory than that described by the present invention for applications such as the remote control of ground vehicles and aircraft.

While continuing to traverse the Examiner's rejection, Applicant has, in order to expedite prosecution of the application, added new dependent claims 15 and 16 so as to incorporate within the claimed matter the limitation of the device of the present invention to a remotely controlled vehicle, an application wherein the present invention is clearly

superior to that of Iida et al. '878, as demonstrated in the reply filed by Applicant on July 18, 2007.

The Examiner has, citing Iida et al. '878, paragraphs [0080] and [0081], and Figures 9-12, further rejected the following argument presented July 18, 2007 by Applicant:

> While continuing to traverse the Examiner's rejections, Applicant has, in order to expedite the prosecution, chosen to amend independent claims 1 and 11 in order to clarify and emphasize the crucial distinctions between the present invention and the application of Iida et al. '878 cited by the Examiner. Specifically, claims 1 and 11 have been amended to clarify that the second image, which is a result of an estimate of the image currently seen by the camera, based upon a previous image from the camera and the movement commands that have been issued until this time, and, optionally, filler image data and/or historic image data, when available, is displayed upon substantially the same region of the display upon which the first image had been displayed. This is in contradistinction to the Third Embodiment of Iida et al. '878, in which the displayed image is moved from place to place on the display, corresponding to the direction the camera is expected to be pointing after the movement commands have been executed.

Following is a citation from paragraphs [0080-082] of Iida et al. '878:

[0080] Therefore, during the period of time in which driving of the camera 2 is carried out in response to the pan, tilt and zoom commands, the <u>markers</u> 401, 411, 421 representing the current view positions <u>move</u> toward the <u>markers</u> 402, 412, 422 representing the respective target positions.

[0081] An image 41 shown in FIG. 10 is an image captured in the condition that driving of the driving section 23 has been completed. Each scroll bar in FIG. 10 has the same meaning as that having the same reference numeral in FIG. 9, and black markers 403, 413, 423 on the respective scroll bars represent a pan position, a tilt position and a zoom position at the time of capture of the image 41 based on the view position data 102 added to the image data 110 from which the image 41 is generated. As shown in FIG. 10, after completion of the driving, since the view position overlaps with the target position, markers generated based on the target position data 111 are not displayed.

> [0082] In this way, it is possible to display the view position and the target position on the scroll bars displayed on the image display section 32 of the portable phone 3, and hence the user can readily predict an image after driving of the camera 2 by comparing the current view position and the target position after driving. (emphasis added)

Applicant respectfully notes that paragraphs [0080] and [0082] make it quite clear that the predictive feedback being provided in the teachings of Iida et al. '878 is in the form of moving markers or other such visual devices, and not in the form of movement and other modification of photographic image data from the camera, as provided for by the present invention.

It is to be noted that, as seen in paragraph [0082] of Iida et al. '878, the user is given the task of predicting the new image based on graphic devices such as scroll bars or dials. This is in sharp contrast to the present invention, which presents the predicted image directly to the user.

Furthermore, Applicant respectfully notes that the text strings "fill" and "filler" do not appear in the text of Iida et al. '878, and that Figures 9-12 of Iida et al. '878 do not provide a hint or a suggestion of the use of any filler other than plain white space to represent portions of the display space for which image data are not available.

Amended independent claims 1 and 11 now feature language which makes it absolutely clear that the present invention provides for a predictive display having features not hinted at or suggested in Iida et al. '878. Applicant believes that the amendment of the claims completely overcomes the Examiner's rejections on § 102(e) grounds.

New Claims

As noted above, in order to further distinguish the present invention Applicant has added claims 15 and 16, which limit the type of device to which the present invention applies, and, more specifically, limit the device of the present invention to be a vehicle operative to be remotely controlled.

Support for these new claims can be found in the specification. Specifically, support for limiting the invention to a remotely controlled vehicle can be found in the following citation from paragraph 28 of the present application, as published by the USPTO, publication number 20060187224:

> [0028] Reference is now made to FIG. 1, which is a view of a remotely operated system 10 having a display 12 that is constructed and operable in accordance with a preferred embodiment of the present invention. Remotely operated system 10 also has a remotely controlled device 14 and an operator module 22. Device 14 has disposed thereon, a camera 18 and a transceiver 20. Device 14 is typically a remotely operated vehicle or surveillance camera arrangement. (emphasis added)

Amendments to the Specification

No new matter has been added.

Typographical Correction

A typographical error in claim 14 has been corrected; specifically the word "method" has been removed and replaced with the word "system", so as to correspond correctly with claim 11, from which claim 14 depends.

In view of the above amendments and remarks it is respectfully submitted that independent claims 1 and 11, and hence dependent claims 2-10 and 12-16 are in condition for allowance. Prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

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